ABSTRACT OF THE DISCLOSURE

A setup planning technique is provided in which a family of parts to be manufactured is identified, and the setup constraints imposed by the various bending operations in the part family are determined. The setup constraints may define or describe spatial constraints on the sizes and locations of various tooling stages in the setup. After identifying setup constraints, setup plans are generated that satisfy all setup constraints. Any setup plan that satisfies all setup constraints may then be utilized to accommodate every part in the part family. Constraint propagation techniques may be utilized to identify compatible setup constraints and create setup plans. According to the various features and aspects of the invention, dissimilar sheet metal parts can share setups, and the need for extra tooling and fixturing may be minimized. Further, the present invention provides potential savings over state-of-the-art systems, and increases production capability and overall through-put of manufacturing facilities.